

The opinion in support of the decision being entered today  
is *not* binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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*Ex parte* GEORGE BOKISA, WILLIAM E. ECKLES,  
and ROBERT E. FRISCHAUF

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Appeal 2006-3193  
Application 10/772,595  
Technology Center 1700

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Decided: September 6, 2007

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Before BRADLEY R. GARRIS, CHARLES F. WARREN, and  
LINDA M. GAUDETTE, *Administrative Patent Judges*.

GAUDETTE, *Administrative Patent Judge*.

DECISION ON APPEAL

This is an appeal from the final rejection of claims 1-13 and 15-26,  
the only claims pending in the application. We have jurisdiction under  
35 U.S.C. § 6(b).

We AFFIRM.

Claim 1 is illustrative of the invention and is reproduced below:

1. A method of electroplating a quaternary alloy comprising nickel and cobalt, comprising:

providing an electroplating bath comprising an anode, a cathode, water, ionic nickel, ionic cobalt, at least two ionic alloy metals, and at least one acetylenic-brightener; and

applying a current to the electroplating bath whereby the quaternary alloy comprising nickel, cobalt, and at least two alloy metals forms on the cathode.

The Examiner relies on the following prior art references to show unpatentability:

Passal	US 3,697,391	Oct. 10, 1972
Kunishi (JP '693)	JP 10-245693	Sep. 14, 1998
Ramanauskene (SU '847)	SU 1544847 A1	Feb. 23, 1990

The Examiner made the following rejections:

1. Claims 1-6, 8, and 24 under 35 U.S.C. § 103 as unpatentable over JP '693 in view of Passal.

2. Claim 7 under 35 U.S.C. § 103 as unpatentable over JP '693 in view of Passal and Hui.

3. Claims 9-12, 15-17, and 25 under 35 U.S.C. § 103 as unpatentable over JP '693 in view of Passal.

4. Claim 13 under 35 U.S.C. § 103 as unpatentable over JP '693 in view of Passal and SU '847.

5. Claims 18-23 and 26 under 35 U.S.C. § 103 as unpatentable over JP '693 in view of Passal.

Appellants advance essentially the same substantive arguments with respect to rejections 1, 3, and 5. Appellants do not present separate arguments as to any particular claim, but argue that all of the claims are patentable for the same reasons discussed with respect to claim 1 (Br. 12 and 13). Accordingly, we decide these grounds of rejection on the basis of independent claims 1, 9, and 18, respectively. With respect to rejections 2 and 4, we note that Appellants fail to advance any substantive arguments beyond those presented in connection with the rejections of claims 1 and 9, from which claims 7 and 13 depend, respectively. *See* 37 C.F.R. § 41.37(c)(1)(vii) (“A statement which merely points out what a claim recites will not be considered an argument for separate patentability of the claim.”). Accordingly, the issues raised in this Appeal pertain to all five grounds of rejection.

## ISSUES

### Issue I:

Appellants contend that JP ‘693 and Passal do not “mention any quaternary alloy including a quaternary Ni-Co alloy” (Reply 2 & 4). Appellants maintain that JP ‘693 and Passal only contain specific disclosures of binary Ni-Co alloys (Reply 3 & 4). Appellants concede that both JP ‘693 and Passal disclose Ni-Co electroplating baths containing boric acid, but maintain that the boric acid “does not provide a significant portion of platable boron” (Reply 2 & 4). Appellants further concede that Passal discloses the addition of zinc to an electroplating bath containing Ni, Co, and boric acid (Reply 8). However, Appellants argue that the zinc is added

as “metallic impurities” or “metallic contaminant” and not as a platable metal ion (Reply 5).

The Examiner contends that JP ‘693’s disclosure of a nickel alloy electroplating bath consisting of a nickel salt and a salt of one or more elements selected from boron, cobalt, copper, iron, manganese, phosphorus, tin, and zinc would have suggested a quaternary Ni-Co alloy (Answer 17). The Examiner further contends that the overall solution in Passal Example 8 would have contained ionic nickel, ionic cobalt, ionic boron, and ionic zinc which would have formed a quaternary Ni-Co alloy (Answer 18).

Based on the contentions of the Examiner and the Appellants, the issue before us is: Do JP ‘693 and Passal inherently disclose quaternary Ni-Co alloys?

For the reasons discussed below, we answer this question in the affirmative.

Issue II:

Appellants contend that one of ordinary skill in the art would not have been motivated to replace the quaternary ammonium salt of JP ‘693 with the acetylenic compound of Passal (Br. 5). According to Appellants, there is no teaching or suggestion in Passal indicating that acetylenic brighteners would be effective in improving the appearance of quaternary Ni-Co alloys (Br. 8). Appellants contend that Passal actually teaches that the addition of acetylenic compounds to a Ni-Zn alloy is not effective in improving the appearance of the Ni-Zn alloy (Br. 7). Appellants further contend that one of ordinary skill in the art would not have been motivated to substitute the quaternary ammonium salt brightener of JP ‘693 with the acetylenic brightener of Passal because such substitution would have a negative impact

on plating efficiency and an adverse effect on the bonding of the plated alloy and substrate (Br. 9-10).

The Examiner contends that one of ordinary skill in the art would have been motivated to have included an acetylenic brightener in the method of JP '693 in view of Passal's disclosure that such brighteners, when used alone or in combination in a nickel-cobalt containing bath composition, may produce semi-lustrous, fine grained deposits (Answer 6).

Based on the contentions of the Appellants and the Examiner, the issue for us to decide is: Do the facts and reasons relied on by the Examiner provide a reasonable basis to conclude that one of ordinary skill in the art would have been motivated to combine the teachings of the references in the manner claimed?

For the reasons well stated in the Examiner's Answer, and further discussed below, we answer this question in the affirmative.

#### FINDINGS OF FACT – CLAIM INTERPRETATION

The Specification includes the following disclosure:

- 1) "The present invention provides quaternary alloys containing at least nickel and cobalt. . . . At least two of many other alloy metals, such as iron and boron, are also contained in the quaternary alloys. In this context, the quaternary alloys contain at least four metal components." (Specification 2:3-7).
- 2) "The two or more alloy metals are any metals that can be electroplated in a compatible manner with nickel and cobalt generally include transition metals. Examples of transition metals include . . . boron, . . . zinc, and the like" (Specification 5:8-14). "Examples of alloy

metal salts include . . . zinc salts such as . . . zinc sulfate” (Specification 5:15 and 6:22).

- 3) “Boron may alternatively be introduced into the electroplating bath by a boron containing acid. . . . The boron containing acid does not include boric acid, as boric acid improves conductivity and/or is used as a pH adjuster. It is noted that the boric acid does not provide a significant portion of platable boron, although in some instances it may provide minor amounts of platable boron (Specification 7:5-11).

#### FINDINGS OF FACT – PRIOR ART

- 4) JP ‘693 claims a nickel or nickel alloy electroplating bath comprising nickel salts or nickel salts and at least one selected from water-soluble salts of boron, cobalt, copper, iron, manganese, phosphorus, tin, and zinc and quaternary ammonium compounds as brighteners (claim 1).
- 5) Passal discloses “a process for the preparation of an electrodeposit which contains at least one metal selected from the group consisting of nickel and cobalt” (Passal, col. 2, ll. 32-34). In particular, Passal discloses the use of additives to “improve the tolerance of nickel, cobalt, and alloy plating baths containing nickel and/or cobalt to the adverse effects of both metallic impurities and relatively high concentrations of primary brighteners” (Passal, col. 1, ll. 46-50).
- 6) Passal discloses that metallic impurities such as zinc are introduced into the plating bath composition in various ways, including the use of commercial grade salts to prepare the bath and the dissolution of parts which may fall into the plating bath during the plating process (Passal, col. 1, ll. 51-72).

- 7) The additives used in Passal's process include one or more brighteners (Passal, col. 2, ll. 36-47). According to Passal, the "best results are obtained when primary brighteners are used with either a secondary brightener, a secondary auxiliary brightener, or both in order to provide optimum deposit luster, rate of brightening, leveling, . . . , etc." (Passal, col. 3, ll. 27-31).
- 8) Passal discloses that primary brighteners include acetylenics (Passal, col. 3, ll. 3-5). According to Passal "[a]mong the secondary auxiliary brighteners one may also include ions or compounds of certain metals and metalloids such as zinc . . . to augment deposit luster" (Passal, col. 4, ll. 23-27).

#### ANALYSIS AND CONCLUSIONS

Issue I: Do JP '693 and Passal inherently disclose quaternary Ni-Co alloys?

In order to make a proper comparison between the claimed invention and the prior art, the Examiner must first construe the language of the claims. *See In re Paulsen*, 30 F.3d 1475, 1479, 31 USPQ2d 1671, 1674. During prosecution claims are given their broadest reasonable construction "in light of the specification as it would be interpreted by one of ordinary skill in the art." *In re Am. Acad. Of Sci. Tech. Ctr.*, 367 F.3d 1359, 1364, 70 USPQ2d 1827, 1830 (Fed. Cir. 2004).

Appellants maintain that the claims should be construed as excluding contaminants and boric acid as sources for the ionic metal alloys used to form a quaternary alloy on the cathode. However, we see no basis in the claims or Specification (*see* Findings of Fact 1-3) for such a narrow claim construction. Accordingly, we are in agreement with the Examiner's

interpretation of the language “providing an electroplating bath comprising . . . at least two ionic alloy metals” (claims 1, 9 and 18) as encompassing an electroplating bath containing boric acid and a zinc contaminant.

Based on this claim construction, we further concur with the Examiner’s determination that both JP ‘693 and Passal inherently disclose quaternary Ni-Co alloys for the reasons well-stated in the Answer. Notably, Passal discloses an example in which the electroplating bath includes Ni, Co, boric acid, and zinc sulfate (Answer 17-18, discussing Passal Example 8). Appellants’ own Specification indicates that boric acid may provide minor amounts of platable boron (Finding of Fact 3) and specifically teaches that zinc sulfate is a suitable source of ionic metal alloy (Finding of Fact 2).

Therefore, the burden was properly shifted to Appellants to establish that the prior art methods do not necessarily provide electroplating of a quaternary alloy comprising nickel and cobalt. *See In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433-34 (CCPA 1977) (Where patentability rests upon a property of the claimed material not disclosed within the art, the PTO has no reasonable method of determining whether there is, in fact, a patentable difference between the prior art materials and the claimed material. Therefore, where the claimed and prior art products are identical or substantially identical, or are produced by identical or substantially identical processes, the PTO can require an applicant to prove that the prior art products do not necessarily possess the characteristics of the claimed product.) Appellants have not provided sufficient arguments or evidence to meet this burden.



Issue II: Do the facts and reasons relied on by the Examiner provide a reasonable basis to conclude that one of ordinary skill in the art would have been motivated to combine the teachings of the references in the manner claimed?

“When a patent ‘simply arranges old elements with each performing the same function it had been known to perform’ and yields no more than one would expect from such an arrangement, the combination is obvious.” *KSR Int’l Co. v. Teleflex Inc.*, 127 S. Ct. 1727, 1740, 82 USPQ2d 1385, 1395-96 (2007) (quoting *Sakraida v. Ag Pro, Inc.*, 425 U.S. 273, 282, 96 S. Ct. 1532, 47 L. Ed. 2d 784 (1976)). As pointed out by the Examiner, Passal teaches that the use of both quaternary ammonium salt and acetylenic brighteners in Ni-Co electroplating processes is well known in the art (Answer 6). Moreover, Passal teaches that various advantages are achieved by using several types of brighteners in combination (Findings of Fact 7 & 8). *See In re Thrift*, 298 F.3d 1357, 1365, 63 USPQ2d 2002, 2007 (Fed. Cir. 2002)(Where a second reference identifies the benefits of adding a feature to the primary reference, an obviousness rejection is proper.). *See also In re Beattie*, 974 F.2d 1309, 1312, 24 USPQ2d 1040, 1042 (Fed. Cir. 1992) (“As long as some motivation or suggestion to combine the references is provided by the prior art taken as a whole, the law does not require that the references be combined for the reasons contemplated by the inventor.”). *See In re Fritch*, 972 F.2d 1260, 1264-65, 23 USPQ2d 1780, 1782-83 (Fed. Cir. 1992) (A reference stands for all of the specific teachings thereof as well as the inferences one of ordinary skill in this art would have reasonably been expected to draw therefrom.); *In re Bozek*, 416 F.2d 1385, 1390,

163 USPQ 545, 549 (CCPA 1969)(A reference disclosure must be evaluated for all that it fairly teaches and not only for what is indicated as preferred). Thus, in our view, the Examiner has convincingly established that one of ordinary skill in the art at the time of the invention would have been motivated to have included an acetylenic brightener in the method of JP '693 in view of the advantages noted by Passal.

In traversing the Examiner's rejections, Appellants argue that one of ordinary skill in the art would not have been motivated to substitute the quaternary ammonium salt brightener of JP '693 with the acetylenic brightener of Passal. However, Appellants have not addressed the Examiner's determination that one of ordinary skill in the art would have been motivated to use an acetylenic-brightener in the JP '693 electroplating bath in addition to the disclosed quaternary ammonium salt brightener.<sup>1</sup>

In summary, we find that the Examiner has established a prima facie showing of obviousness as to appealed claims 1-13 and 15-26. We further find that Appellants have failed to present persuasive arguments or evidence to overcome the Examiner's § 103 rejections.

#### ORDER

The rejection of claims 1-6, 8, and 24 under 35 U.S.C. § 103 as unpatentable over JP '693 in view of Passal is affirmed.

The rejection of claim 7 under 35 U.S.C. § 103 as unpatentable over JP '693 in view of Passal and Hui is affirmed.

The rejection of claims 9-12, 15-17, and 25 under 35 U.S.C. § 103 as unpatentable over JP '693 in view of Passal is affirmed.

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<sup>1</sup> Note that the present claims are not limited to a single brightener.

Appeal 2006-3193  
Application 10/772,595

The rejection of claim 13 under 35 U.S.C. § 103 as unpatentable over JP '693 in view of Passal and SU '847 is affirmed.

The rejection of claims 18-23 and 26 under 35 U.S.C. § 103 as unpatentable over JP '693 in view of Passal is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(i)(iv).

AFFIRMED

clj

AMIN, TUROCY & CALVIN, LLP  
1900 EAST 9TH ST., NATIONAL CITY CENTER  
24TH FLOOR  
CLEVELAND, OH 44114